



Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200

**D3009-3**  
**Job Sheet 174376**



Part No: D3009-3

Job Qty: 120 ea

Part Name: Cup



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 3/14/18

Job Tracking No:

Due Date: 4/13/18

Created By: Marie Lajeunesse

Type: SOLD

Description:

Note: DWG REV B IPP A 07.12.18 new issue EC IPP Rev:B 08-01-08 ECN 1089 rev:b as per dwg DD verified by:ec  
Ship Via:

### Bill of Materials

### Job Routing

| Op No | Operation          | Qty     | Start Date | Due Date | Standard  |         | Workcenter/Supplier   |           | Sign-off    |
|-------|--------------------|---------|------------|----------|-----------|---------|-----------------------|-----------|-------------|
|       |                    |         |            |          | Setup hrs | Run Hrs | Workcenter / Supplier | Lead Time |             |
| 90    | Start up Operation | 120 Ea  |            | 4/12/18  | 0.00      | 0.00    | Start Up Machining-1  |           | JB 18.04.04 |
| 100   | Hardinge           | 120 pcs |            | 4/13/18  | 0.00      | 14.20   | Hardinge              |           | JB 18.04.04 |
| 120   | QC                 | 120 pcs |            | 4/13/18  | 0.00      | 0.00    | QC8                   |           | JB 18/04/05 |
| 130   | Packaging          | 120 pcs |            | 4/13/18  | 0.00      | 0.00    | Packaging3-1          |           | EL          |
| 140   | QC21-SA            | 120 Ea  |            | 4/13/18  | 0.00      | 0.00    | QC21                  |           | LAS 21 9-80 |

Part Op 100 - 1-TURN AS PER FOLIO FA130 & DWG D3009  
Descriptions: 130 - \*\*\*\*\*STOCK IN LARGE FAB\*\*\*\*\* LOCATION WA002

### Job BOM

| Part / Item | Component Name     | Quantity             | Operation             | Container |
|-------------|--------------------|----------------------|-----------------------|-----------|
| M304R1.000  | 304 Round Bar 1.00 | 5.7480 ft (.0479 ea) | 90-Start up Operation |           |

### Job Allocations

| Operation             | Component Part | Required | Inventory | Allocated |
|-----------------------|----------------|----------|-----------|-----------|
| 90-Start up Operation | M304R1.000     | 6        | 60        | 0         |

### Part Specifications

| Spec No | Description | Target/Tolerance                  | Limits         | Type     | Special Comments |
|---------|-------------|-----------------------------------|----------------|----------|------------------|
| 1       | Cup         | 0.875Inches<br>+ 0.000<br>- 0.005 | 0.875<br>0.870 | Diameter |                  |
| 2       | Cup         | 0.750Inches<br>+ 0.008<br>- 0.001 | 0.758<br>0.749 | Diameter |                  |
| 3       | Cup         | 0.266Inches<br>+ 0.006<br>- 0.001 | 0.272<br>0.265 | Diameter |                  |
| 4       | Cup         | 0.062Inches ± 0.010               | 0.072<br>0.052 | Radius   |                  |
| 5       | Cup         | 0.094Inches ± 0.010               | 0.104<br>0.084 |          |                  |
| 6       | Cup         | 0.353Inches ± 0.010               | 0.363<br>0.343 |          |                  |
| 7       | Cup         | 0.063Inches ± 0.010               | 0.073<br>0.053 |          |                  |
| 8       | Cup         | 0.032Inches ± 0.010               | 0.042          | Radius   |                  |

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

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| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Quality <input type="checkbox"/><br/>           Other <input type="checkbox"/> </div> </div>                                                                                                                                                                                                                                                          |  |                                              |  |
| Date :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Step #:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | QTY Effective :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  | MRB (QSI042) Approval                        |  |
| Description Work Order Deviation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  | Completed By                                 |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  | Lead hand / Supervisor Approval Verification |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  | QC / QA Coordinator Approval                 |  |
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| Root Cause                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | FAULT CATEGORY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                              |  |
| <div style="display: flex;"> <div style="flex: 1;">           Environment <input type="checkbox"/><br/>           Design <input type="checkbox"/><br/>           Doc/Data <input type="checkbox"/><br/>           Equip/Tooling <input type="checkbox"/><br/>           Handling/Pre <input type="checkbox"/><br/>           Material <input type="checkbox"/><br/>           Internal Transport <input type="checkbox"/><br/>           Tribal Knowledge <input type="checkbox"/><br/>           LOA <input type="checkbox"/><br/>           Substation <input type="checkbox"/><br/>           Past Expiry Date <input type="checkbox"/><br/>           Misidentified <input type="checkbox"/> </div> <div style="flex: 1;">           No Re-verification <input type="checkbox"/><br/>           Operator <input type="checkbox"/><br/>           Offset/Setup <input type="checkbox"/><br/>           Supplier <input type="checkbox"/><br/>           Training <input type="checkbox"/><br/>           Use for Testing <input type="checkbox"/><br/>           Poor Information <input type="checkbox"/><br/>           Rushing <input type="checkbox"/><br/>           Product Improvement <input type="checkbox"/><br/>           Process Improvement <input type="checkbox"/><br/>           Manufacturing Process <input type="checkbox"/><br/>           Past Due <input type="checkbox"/> </div> </div> | <div style="display: flex;"> <div style="flex: 1;">           Pressure/Forced <input type="checkbox"/><br/>           Bending <input type="checkbox"/><br/>           Centre Not Concentric <input type="checkbox"/><br/>           Cracks <input type="checkbox"/><br/>           Crimp/Kink/Ripple/Wave <input type="checkbox"/><br/>           Cuffs <input type="checkbox"/><br/>           Crushing <input type="checkbox"/><br/>           Heat Treat <input type="checkbox"/><br/>           Wave/Twist in Tube <input type="checkbox"/><br/>           Marks/Chatter <input type="checkbox"/> </div> <div style="flex: 1;">           Temperature/Cure <input type="checkbox"/><br/>           Set-up <input type="checkbox"/><br/>           BOM/Route <input type="checkbox"/><br/>           Broken/Damage/Defect <input type="checkbox"/><br/>           Inspection Incomplete/Unqualified <input type="checkbox"/><br/>           Contamination <input type="checkbox"/><br/>           Countersink <input type="checkbox"/><br/>           Cut Too Short <input type="checkbox"/><br/>           Instructions Incomplete/Unclear <input type="checkbox"/><br/>           Drill Holes <input type="checkbox"/> </div> </div> | <div style="display: flex;"> <div style="flex: 1;">           Power Loss/Surge <input type="checkbox"/><br/>           Folio/Program <input type="checkbox"/><br/>           Grain <input type="checkbox"/><br/>           Weld <input type="checkbox"/><br/>           Wrong Stock Pulled <input type="checkbox"/><br/>           Out of Sequence <input type="checkbox"/><br/>           Off-set <input type="checkbox"/><br/>           Mislabeled <input type="checkbox"/><br/>           Fit/Function <input type="checkbox"/><br/>           Misaligned/off center <input type="checkbox"/> </div> <div style="flex: 1;">           Positioned Wrong <input type="checkbox"/><br/>           Outside Dimensions <input type="checkbox"/><br/>           Over/Under tolerance <input type="checkbox"/><br/>           Part Incorrect <input type="checkbox"/><br/>           Part Lost/Missing <input type="checkbox"/><br/>           Part Moved <input type="checkbox"/><br/>           Drawing <input type="checkbox"/><br/>           Finish <input type="checkbox"/><br/>           Misread <input type="checkbox"/><br/>           Turning Sequence <input type="checkbox"/> </div> </div> |  |                                              |  |
| OTHER : <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                                              |  |

|   |     |                       |        |        |  |
|---|-----|-----------------------|--------|--------|--|
|   |     |                       |        | 0.022  |  |
| 9 | Cup | 45.000Degrees ± 0.000 | 45.000 | Angle  |  |
|   |     |                       |        | 45.000 |  |

Plex 3/14/18 2:43 PM Dart.lajeunesse.marie



DQA: \_\_\_\_\_ Date: \_\_\_\_\_

## WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

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| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Quality <input type="checkbox"/><br/>           Other <input type="checkbox"/> </div> </div> |                          |                                                                                                                                       |             |                          |                    |                          |        |                          |          |                          |          |                          |              |                          |               |                          |          |                          |              |                          |          |                          |          |                          |                 |                          |                    |                          |                  |                          |                  |                          |         |                          |     |                          |                     |                          |            |                          |                     |                          |                  |                          |                       |                          |               |                          |          |                          |                        |                          |                                   |                          |       |                          |               |                          |          |                          |             |                          |            |                          |               |                          |                    |                          |                                 |                          |               |                          |             |                          |                  |                          |                    |                          |                      |                          |                |                          |                   |                          |            |                          |         |                          |        |                          |         |                          |                  |                          |
| Date : _____<br><br><div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <b>Description Wor</b> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Step #: _____<br><br>QTY Effective : _____                                                                                                                                         | <div style="text-align: center;"> <br/> <b>Container No: S058265</b><br/> <b>Part: D3009-3</b><br/> <b>Job No: 174376</b><br/> <b>Serial No/Batch: S058265</b><br/> <b>Revision:</b> _____<br/> <b>Inspector:</b> _____<br/> <b>Date: 04/04/18</b> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                          | MRB (QSI042) Approval<br><br><br>Completed By<br><br>Lead hand / Supervisor Approval Verification<br><br>QC / QA Coordinator Approval |             |                          |                    |                          |        |                          |          |                          |          |                          |              |                          |               |                          |          |                          |              |                          |          |                          |          |                          |                 |                          |                    |                          |                  |                          |                  |                          |         |                          |     |                          |                     |                          |            |                          |                     |                          |                  |                          |                       |                          |               |                          |          |                          |                        |                          |                                   |                          |       |                          |               |                          |          |                          |             |                          |            |                          |               |                    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| <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <b>Root Cause</b><br/> <table style="width:100%; border-collapse: collapse;"> <tr><td style="width:30%;">Environment</td><td><input type="checkbox"/></td><td style="width:30%;">No Re-verification</td><td><input type="checkbox"/></td></tr> <tr><td>Design</td><td><input type="checkbox"/></td><td>Operator</td><td><input type="checkbox"/></td></tr> <tr><td>Doc/Data</td><td><input type="checkbox"/></td><td>Offset/Setup</td><td><input type="checkbox"/></td></tr> <tr><td>Equip/Tooling</td><td><input type="checkbox"/></td><td>Supplier</td><td><input type="checkbox"/></td></tr> <tr><td>Handling/Pre</td><td><input type="checkbox"/></td><td>Training</td><td><input type="checkbox"/></td></tr> <tr><td>Material</td><td><input type="checkbox"/></td><td>Use for Testing</td><td><input type="checkbox"/></td></tr> <tr><td>Internal Transport</td><td><input type="checkbox"/></td><td>Poor Information</td><td><input type="checkbox"/></td></tr> <tr><td>Tribal Knowledge</td><td><input type="checkbox"/></td><td>Rushing</td><td><input type="checkbox"/></td></tr> <tr><td>LOA</td><td><input type="checkbox"/></td><td>Product Improvement</td><td><input type="checkbox"/></td></tr> <tr><td>Substation</td><td><input type="checkbox"/></td><td>Process Improvement</td><td><input type="checkbox"/></td></tr> <tr><td>Past Expiry Date</td><td><input type="checkbox"/></td><td>Manufacturing Process</td><td><input type="checkbox"/></td></tr> <tr><td>Misidentified</td><td><input type="checkbox"/></td><td>Past Due</td><td><input type="checkbox"/></td></tr> </table> </div> <div style="width: 50%;"> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;">Crimp/Kink/Kippie/wave</td> <td style="width:30%;"><input type="checkbox"/></td> <td style="width:30%;">Inspection Incomplete/Unqualified</td> <td style="width:30%;"><input type="checkbox"/></td> </tr> <tr> <td>Cuffs</td> <td><input type="checkbox"/></td> <td>Contamination</td> <td><input type="checkbox"/></td> </tr> <tr> <td>Crushing</td> <td><input type="checkbox"/></td> <td>Countersink</td> <td><input type="checkbox"/></td> </tr> <tr> <td>Heat Treat</td> <td><input type="checkbox"/></td> <td>Cut Too Short</td> <td><input type="checkbox"/></td> </tr> <tr> <td>Wave/Twist in Tube</td> <td><input type="checkbox"/></td> <td>Instructions Incomplete/Unclear</td> <td><input type="checkbox"/></td> </tr> <tr> <td>Marks/Chatter</td> <td><input type="checkbox"/></td> <td>Drill Holes</td> <td><input type="checkbox"/></td> </tr> </table> </div> </div> <div style="width: 45%; margin-top: 10px;"> <table style="width:100%; border-collapse: collapse;"> <tr><td style="width:30%;">Positioned Wrong</td><td><input type="checkbox"/></td></tr> <tr><td>Outside Dimensions</td><td><input type="checkbox"/></td></tr> <tr><td>Over/Under tolerance</td><td><input type="checkbox"/></td></tr> <tr><td>Part Incorrect</td><td><input type="checkbox"/></td></tr> <tr><td>Part Lost/Missing</td><td><input type="checkbox"/></td></tr> <tr><td>Part Moved</td><td><input type="checkbox"/></td></tr> <tr><td>Drawing</td><td><input type="checkbox"/></td></tr> <tr><td>Finish</td><td><input type="checkbox"/></td></tr> <tr><td>Misread</td><td><input type="checkbox"/></td></tr> <tr><td>Turning Sequence</td><td><input type="checkbox"/></td></tr> </table> </div> |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                          |                                                                                                                                       | Environment | <input type="checkbox"/> | No Re-verification | <input type="checkbox"/> | Design | <input type="checkbox"/> | Operator | <input type="checkbox"/> | Doc/Data | <input type="checkbox"/> | Offset/Setup | <input type="checkbox"/> | Equip/Tooling | <input type="checkbox"/> | Supplier | <input type="checkbox"/> | Handling/Pre | <input type="checkbox"/> | Training | <input type="checkbox"/> | Material | <input type="checkbox"/> | Use for Testing | <input type="checkbox"/> | Internal Transport | <input type="checkbox"/> | Poor Information | <input type="checkbox"/> | Tribal Knowledge | <input type="checkbox"/> | Rushing | <input type="checkbox"/> | LOA | <input type="checkbox"/> | Product Improvement | <input type="checkbox"/> | Substation | <input type="checkbox"/> | Process Improvement | <input type="checkbox"/> | Past Expiry Date | <input type="checkbox"/> | Manufacturing Process | <input type="checkbox"/> | Misidentified | <input type="checkbox"/> | Past Due | <input type="checkbox"/> | Crimp/Kink/Kippie/wave | <input type="checkbox"/> | Inspection Incomplete/Unqualified | <input type="checkbox"/> | Cuffs | <input type="checkbox"/> | Contamination | <input type="checkbox"/> | Crushing | <input type="checkbox"/> | Countersink | <input type="checkbox"/> | Heat Treat | <input type="checkbox"/> | Cut Too Short | <input type="checkbox"/> | Wave/Twist in Tube | <input type="checkbox"/> | Instructions Incomplete/Unclear | <input type="checkbox"/> | Marks/Chatter | <input type="checkbox"/> | Drill Holes | <input type="checkbox"/> | Positioned Wrong | <input type="checkbox"/> | Outside Dimensions | <input type="checkbox"/> | Over/Under tolerance | <input type="checkbox"/> | Part Incorrect | <input type="checkbox"/> | Part Lost/Missing | <input type="checkbox"/> | Part Moved | <input type="checkbox"/> | Drawing | <input type="checkbox"/> | Finish | <input type="checkbox"/> | Misread | <input type="checkbox"/> | Turning Sequence | <input type="checkbox"/> |
| Environment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            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| Design                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 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| Doc/Data                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               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| Equip/Tooling                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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| Handling/Pre                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           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| Material                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               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| Internal Transport                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     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| Tribal Knowledge                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       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| LOA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    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| Substation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             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| Past Expiry Date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       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| Misidentified                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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| Crimp/Kink/Kippie/wave                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 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| Cuffs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  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| Crushing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               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| Heat Treat                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             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| Wave/Twist in Tube                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     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| Marks/Chatter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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| Positioned Wrong                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       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